

Communication and Collaboration Keep San Francisco VA Medical Center Project on Track

Regional contract is used to save money, reduce procurement time, and obtain utility rebate

Overview

The Veterans Affairs Medical Center in San Francisco is saving almost 3 million kilowatt-hours of electricity, more than 70,000 therms of natural gas, and more than \$500,000 annually by taking advantage of the Federal Energy Management Program's (FEMP) Super Energy Savings Performance Contracts (ESPCs).

Staff at the Veterans Affairs Medical Center (VAMC) avoided procurement time and expense by negotiating with Johnson Controls, one of FEMP's approved energy services contractors in the Western Region. Together, Johnson Controls and VAMC evaluated areas of high energy consumption and customized the retrofit to the specific needs of the facility. The retrofits included:

- Replacing boilers with a new steam production system
- Evaluating the energy management control system, upgrading controls, and installing a life safety supervision system
- Replacing 25-horsepower air compressors with 40-horsepower rotary air compressors
- Replacing corroded cooling coils
- Replacing existing lamps, ballasts, and fixtures with high-efficiency models and installing lighting controls
- Replacing, where cost effective, existing electric motors.

Johnson Controls invested more than \$4.7 million and will be repaid during the life of the 19-year project from yearly energy savings. The project was made possible by FEMP's Super ESPC Program. Under an ESPC, energy service companies (ESCOs) assume the capital costs of installing energy and water conservation equipment and renewable energy systems. The ESCO guarantees the agency a fixed amount of energy cost savings throughout the life of the contract and is paid directly from those cost savings. Agencies retain the remainder of the energy cost savings for themselves.

Background

The VAMC is located on the historic site of Fort Miley, overlooking the Pacific Ocean and the

Golden Gate Bridge in San Francisco. The Golden Gate National Recreation Area borders the site on three sides. With 28 buildings and 1 million square feet, the facility uses a considerable amount of energy. In 1997, VAMC's energy costs totaled almost \$1.8 million.

In response to Executive Order 13123, the VAMC has to reduce their energy consumption by 35% from 1985 levels by the year 2010. Though the VAMC staff has been working toward this goal, Chief of Facilities Dirk Minnema said they weren't going to reach it without a large project involving a significant capital investment.

The San Francisco VA Medical Center is saving more than \$500,000 and 2.7 million kWh every year through a retrofit financed by FEMP's Super ESPC Program.



"Some of our infrastructure was aging and needed to be replaced, and these replacements were going to be pretty expensive," said Minnema. "Through networking with other facility managers we started thinking about the ESPC program—and found out that it would require no capital up front from us."

Project Summary

The VAMC was using 25-year-old, high-pressure steam boilers to meet the facility's heating and operation needs for hot water, sanitation, and infection control. The retrofit team replaced the boilers



ESPC Case Study

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with natural gas-fired oil heaters to produce steam, which increased system efficiency by about 5%. Though the new system requires additional electricity, it does not require a 24-hour staff to operate it because there are no fired high-pressure vessels; this results in a net energy savings and greater safety.

In addition, the ESPC proposal from Johnson Controls gave the VAMC an opportunity to address many less critical areas in the facility's infrastructure that were aging or needed maintenance. The Energy Management Control System was evaluated for performance deficiencies and upgraded with a life safety supervision system. The team also agreed to replace air compressors, corroding cooling coils, and, when cost-effective, all existing electric motors.

Action	Savings per year			
	Electricity (kWh)	Gas (therms)	Dollar savings	Payback (years)
Boiler replacement	303,902	71,073	\$311,702	8.4
Controls upgrade	156,253	81,880	43,552	7.7
Air compressor replacement	61,093	—	12,565	18.1
Cooling coils replacement	210,273	—	14,719	3.0
Lighting improvements	1,733,751	—	128,098	7.2
Motor efficiency upgrade	258,400	—	18,088	3.6
Total	2,723,672	152,953	\$528,724	8.4*

*Aggregate

The task that provided the most energy savings—more than 1.7 million kilowatt-hours of electricity and \$128,000 in costs—was the lighting retrofit. More than 25,000 lightbulbs were exchanged for high-efficiency bulbs, and lamps and ballasts were replaced with higher-efficiency models. Lighting controls were installed in areas such as surgery units, where the need for light is not continuous throughout the day.

Benefits of Using the Super ESPC Program

FEMP's Super ESPC program allowed the San Francisco medical center to complete its energy-saving retrofit more quickly and cost effectively.

"The ESPC program allows these types of facilities to take no risks with a project," said Mike Manley of Johnson Controls. "The bottom line is that the project was a budget-neutral transaction for (the

VAMC)." Energy savings realized each year go to Johnson Controls; after the debt is paid, 19 years in this case, energy and cost savings go to the facility.

Support from the FEMP Service Network (FSN) can make the Delivery Order process very manageable. FSN technical and contracting experts are available to explain and support the project, resulting in more knowledgeable participants and a solid technical approach. With help from the FSN, the VAMC project took only 7 months from Notice of Interest to award of the Delivery Order.

Lessons Learned

Communication, along with the active participation of all parties, was the key to keeping this ESPC project on schedule and within budget. Team members went into the process willing to consider all options and look at things from different perspectives.

"Both sides were willing to negotiate openly to make things work," said Tim Kehrli, Super ESPC project facilitator for DOE's Western Region. "There were no punches pulled—so when the proposal was delivered there were no surprises."

Meeting the schedule also had another benefit. VAMC's utility, Pacific Gas & Electric, offered a \$75,000 rebate for completion of the lighting retrofit within an established timeframe.

Looking Ahead

During the evaluation and contracting process, additional energy-saving ideas surfaced that were beyond the scope of the original project. As a result of the successful working relationship formed by all the parties, the VAMC has agreed to consider additional proposals from Johnson Controls to further energy-saving efforts at the site.

For More Information

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